

FOREST INSECT CONDITIONS  
on the  
SAWTOOTH NATIONAL FOREST  
1967

The following is a report of major forest insect problems occurring on the Sawtooth National Forest during 1967. Information for the report was accumulated from aerial detection surveys and on-the-ground biological evaluations. In many cases, forest insect problems were brought to our attention by verbal and written reports from your staff.

Mountain pine beetle killing lodgepole pine caused widespread damage on the Forest. Several old infestation centers remained active and many new attack centers were detected. Douglas-fir beetle activity increased primarily on the west side of the North Division and epidemic populations appear to be receding on the Sublett Division as a result of the last three years of intensified logging. Scattered Western pine beetle damage was observed to be increasing in Grouse Creek on the Shake Creek Ranger District. However, these small infestations do not show epidemic tendencies. Defoliation of Douglas-fir, true firs, and spruce by the spruce budworm, declined from 110,000 acres in 1966 to 18,100 acres, due to natural causes. Two small areas of new budworm activity were detected. Total acreage affected was small and defoliation intensities were classed as light. A terminal weevil that has been causing damage to lodgepole pine in the Sawtooth Valley and south from Galena Summit remained at about the same level of activity noted in 1966. Elsewhere on the Forest, insect caused losses remained at a relatively low level. A more comprehensive discussion of these insect problems follows.

MOUNTAIN PINE BEETLE - *Dendroctonus ponderosae* Hopk.

Mountain pine beetle populations have shown a slow but steady increase for the past five years on the North and South Divisions of the Forest. In 1966, a spring treating program was undertaken on the Ketchum and Fairfield Ranger Districts. Approximately 5,500 trees were treated with applications of BHC (lindane) and an additional 900 trees were felled and removed by logging. The 1966 treating programs covered only a small portion of the total infested area. Weather conditions were not favorable for getting into the areas and completing the treating job during the spring. This and other factors considered, the treating program could be summed up as "too late with too little". Part of the problem arose from inadequate financing.

During aerial detection flights this year, a considerable increase in Mountain pine beetle activity on both the North and South Divisions was observed. Concentrations are so numerous that it is not practical to mention them individually in the text of this report. Reference should be made to your copy of the aerial survey map. On-the-ground evaluations in the Cassia Division show increased activity in Wahlstrom Hollow

where brood densities averaged 207 per square foot of bark surface. This is a considerable increase over that found in the same area last year. Evaluations were made in five different areas and brood data shows population densities ranging from 71 to 207 per square foot of bark surface, with a mean of 180. These fairly high densities, along with the availability of sufficient mature and over-mature host type indicate that the infestations will continue their increasing trends.

On the Northern Division, increasing beetle activity occurred primarily on the Ketchum and Fairfield Ranger Districts. On-the-ground evaluations showed relatively high brood densities and build up ratios increased over those of last year. On many occasions we have been asked what is causing this particular buildup of mountain pine beetle activity. The most practical answer to this is that a high percentage of the lodgepole pine stands are in the mature to over-mature age class categories. Stands in this condition lend themselves readily to buildups of bark beetle attacks when biological and climatological factors combine for optimum insect development. Once populations begin to build up, chemical and mechanical suppression measures have to be employed to suppress the epidemics. These actions, however, are only suppressive in nature and no control can be effected so long as the mature and over-mature age class timber remains in a relatively unmodified state. The only solution to this problem is to harvest the mature and over-mature stands and get into a younger age class of management. Admittedly, this is easier said than done, for current market conditions and shortage of mill capacity to handle the material, are limiting factors. In areas that have been designated economically desirable to control insect infestations, a combination of logging and chemical treating can be used to protect values. Once again, action such as this will not be effective unless total area control is initiated and carried out on a one year basis and continued annually until the beetles impetus is broken. There is no question about the fact that the Sawtooth Mountain pine beetle epidemics are serious at the present time. This year, however, with the emphasis on pest control supporting expenditures by values protected, it would be difficult to support suppressive measures unless they were accompanied by control measures which would reduce the hazard by changing the age class.

The following data was compiled from aerial survey flights and shows the estimated number of faded trees that were detected in 1967. Since trees fade one year after attack these figures indicate our best estimate of the number of trees killed in 1966.

| AREA                          | HOST           | <u>FADERS</u> |
|-------------------------------|----------------|---------------|
| South Division (Old Minidoka) | Lodgepole pine | 1,500         |
| Northern Division             | Lodgepole pine | 7,700         |
| Northern Division             | Ponderosa pine | 250           |

DOUGLAS-FIR BEETLE - *Dendroctonus pseudotsugae*

Group killing of Douglas-firs showed a sharp increase on the Shake Creek Ranger District during the past field season. Beetle populations which developed in blowdown were a direct result of storms during the winter of 1964-65. At that time, unseasonable rains caused rapid snow melt, followed by winds and heavy snows that toppled Douglas-firs in widely scattered locations. During the spring and early summer of 1965, Douglas-fir beetles attacked the downed trees and large brood concentrations built up. As a result, emerging adults made heavy standing tree attacks in 1966. To date, these outbreaks do not approach the intensity or size of the epidemic that has been going on in the Sublette Division for the past few years. However, group sizes and numbers of groups detected showed a decided increase over what was observed in 1966. The only effective control measures we have for the Douglas-fir beetle are timely logging and prudent slash disposal. Whenever and wherever possible, Douglas-fir beetle infestations should be incorporated into new sale planning. Another direct attack can be made on this pest by utilizing salvage loggers and, if necessary, selling the timber under administrative use authority at reduced prices.

Evaluations of Douglas-fir stands showed that for every tree that was killed in 1966, three trees have been attacked in 1967. Unless natural factors, such as, parasites, predators, and adverse climatic conditions, drastically reduce population levels, tree killing by the Douglas-fir beetle will continue to increase in 1968.

WESTERN PINE BEETLE - *Dendroctonus brevicornis*

During the last two years, we have observed a slowly increasing trend in Western pine beetle activity in ponderosa pine stands primarily on the Shake Creek Ranger District. At the present time, infestations occur as small groups of killed trees, usually from three to ten trees in a group. Examination of broods in Grouse Creek revealed combined attacks by the western pine and mountain pine beetle. In this particular area, small diameter pines were being hit by the mountain pine beetle, and large diameter pines were killed by the western pine beetle. No widespread areas of new attacks were found and beetle damage can be expected to remain at about the same level of activity in 1968.

IPS

Ips damage occurred primarily on the Shake Creek Ranger District where groups of ten to fifty pole size ponderosa pines have been killed. This year aerial observations revealed considerable amounts of Ips killed trees in the vicinity of Pine Gulch, Roberts Gulch, and Grouse Creek. On-the-ground evaluations showed relatively fewer new attacks than anticipated. It is expected that the Ips infestations will remain at about the same level during the 1968 field season.

SPRUCE BUDWORM - Choristoneura occidentalis

Defoliation of Douglas-fir, true firs, and spruce stands decreased from 110,000 acres in 1966 to 18,100 acres in 1967. Outside of the Big Smoky area where budworm infestations have been prevalent for several years, two new defoliation centers were found, one in Johnson Creek, the other in Bass and Perkons Creek. Both of these areas were relatively small and defoliation intensities light.

Fall egg mass samples were taken in the old infestation centers. Comparisons of new and old egg mass counts from selected locations with their respective trends and defoliation estimates follow:

| Sampling Locations | Average No. Egg Masses per 1000 Sq.In. of Foliage |      | Expected Defoliation in 1968 |            |
|--------------------|---------------------------------------------------|------|------------------------------|------------|
|                    | 1966                                              | 1967 | %                            | Trend      |
| Upper Bounds Creek | 0.12                                              | .2   | 14.1 < 15%                   | Static     |
| No. Fleck Summit   | 11.37                                             | 5.6  | 17.2 < 15-25%                | Decreasing |
| Sydney Butte       | 4.83                                              | 4.4  | < 15-25%                     | Static     |
| Boardman Creek     | 3.25                                              | 2.1  | < 15%                        | Decreasing |
| Lower Bounds Creek | 4.08                                              | 1.0  | 18.7 < 15%                   | Decreasing |
| Couch Summit       | 8.72                                              | 1.7  | < 15%                        | Decreasing |

Even though defoliation predictions for 1968 indicate decreasing trends, there is always a possibility that spruce budworm populations could build back to epidemic levels. The primary reason for this is that residual numbers of the pest still remain in the area. As you know, the Sawtooth spruce budworm infestation has a long history of building up to high damage levels, then dropping off due to adverse natural factors. This is illustrated by the following eight year history of budworm defoliation as reported by aerial surveys:

| Year | DEFOLIATION INTENSITY |          |        | Total Acres |
|------|-----------------------|----------|--------|-------------|
|      | Light                 | Moderate | Heavy  |             |
| 1960 | 120,000               |          | 1,000  | 121,000     |
| 1961 | 5,000                 | 3,000    | 5,000  | 13,000      |
| 1962 | 4,000                 | 10,000   | 27,000 | 41,000      |
| 1963 | 14,720                | 25,440   | 20,000 | 60,160      |
| 1964 | 32,000                | 21,000   | 1,000  | 54,600      |
| 1965 |                       | 9,000    |        | 9,000       |
| 1966 | 78,500                | 15,400   | 16,100 | 110,000     |
| 1967 | 18,100                |          |        | 18,100      |

LODGEPOLE PINE TERMINAL WEEVIL

A lodgepole pine terminal weevil has been damaging reproduction and pole stands in the Sawtooth Valley and areas south of Galena Summit for two consecutive years. Damage during 1967 did not increase appreciably over what was observed in 1966. For the most part, the weevil confines its activity to the terminals. However, some laterals were attacked this year. Heaviest damage was found between Alturas and Pettit Lakes. We still do not have a positive identification on the weevil but suspect it may be Pissodes sp. So far the threat of a major epidemic does not seem likely.

  
JERRY A.E. KNOPF, Zone Entomologist